

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Applicant : Guy Besson	
Appln. No. : 10/559,404	Confirmation No: 5597
Filed : 9/25/2006	Group Art Unit: 3768
Title : Integrated X-Ray and Ultrasound Medical Imaging System	Examiner: Nguyen, Hien Ngoc

PRELIMINARY AMENDMENT FILED WITH RCE

Commissioner for Patents  
P.O. Box 1280  
Alexandria, VA 22313-1280

This response is being submitted in response to the Final Office Action of August 4, 2009 and together with a Request for Continued Examination of this Application. Applicants provide the following Remarks/Arguments:

Listing of the Claims begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

1. (Currently Amended) A system for acquiring, processing and displaying image data of a patient's breast comprising:

a breast immobilizing device;

an x-ray source for producing a beam of x-rays, the x-ray source that selectively rotates rotating about a selected pivot axis, said beam for irradiating a patient's breast positioned in said immobilizing device, said irradiating being along a multiplicity of different directions of the beam relative to the breast and taking place while the breast remains immobilized;

an imager for detecting x-rays within the beam that have passed through the patient's breast to generate x-ray image data describing a multiplicity of initial x-ray images related to said multiplicity of directions along which the x-ray beam irradiates the breast; and

an ultrasound system for acquiring a pre-scan ultrasound image data describing a multiplicity of initial ultrasound images of the breast for optimizing exposure parameters of the x-ray source. ;

~~a processing system processing the x-ray image data and the ultrasound image data and producing at least one processed x-ray image of the breast suitable for display and at least one processed ultrasound image suitable for display; and~~

~~a display system concurrently displaying the processed x-ray image and the processed ultrasound image.~~

Claims 2-28 (cancelled).

29. (Currently amended) A system as in claim [[28]] 1 in which the ultrasound system includes at least one ultrasound transducer that both emits and receives ultrasound signals and is at one side of the breast.

30. (Currently amended) A system as in claim [[28]] 1 in which the ultrasound system includes at least two ultrasound transducers that are at opposite sides of the breast.

31. (Currently amended) A system as in claim [[28]] 1 in which said pivot axis is at a focal spot from which the x-ray beam emanates.

32. (Currently amended) A system as in claim [[28]] 1 further comprising a processing system for processing the x-ray image data and the ultrasound image data and producing at least one processed x-ray image of the breast suitable for display and at least one processed ultrasound image suitable for display in which said processed x-ray image is a projection image.

33. (Currently amended) A system as in claim [[28]] 32 further comprising a display system for concurrently displaying the processed x-ray image and the processed ultrasound image in which the concurrently displayed processed x-ray and ultrasound images are at different orientations relative to the breast.

34. (Currently amended) The system as in claim [[28]] 1 wherein the image detector and ultrasound system are located in the same housing.

35. (Currently amended) The system as in claim [[28]] 1 wherein the image detector and ultrasound system are selectably connectable.

36. (Currently amended) A system for acquiring x-ray and ultrasound image data of a patient's breast comprising:

an x-ray imaging system including a rotating x-ray source and a detector positioned to receive x-rays from the rotating source during an x-ray scan of the patient's breast;

an ultrasound system for acquiring a pre-scan ultrasound image data describing a multiplicity of initial ultrasound images of the breast for optimizing exposure parameters of the x-ray imaging system; and

a driving mechanism, coupled to both the x-ray imaging system and the ultrasound imaging system for controlling movement of the x-ray imaging system and the ultrasound imaging system during x-ray image and ultrasound image acquisition.

37. (Currently amended) The system according to claim 36 wherein the x-ray imaging system movement is synchronized with the ultrasound system movement during x-ray and ultrasound image acquisition scan follows the pre-scan.